INSTALLATION INSTRUCTION 89113

Rev B

Rancho Suspension System — RS66113B

3.5-in. Short Arm System

Fits 2006 - 1997 Jeep Wrangler TJ / LJ

This suspension system was developed using 33 x 12.50R15 tires. Before installing any other size tire, consult your local tire and wheel specialist. See page 4.

⚠ WARNING

Carefully read, understand and follow the instructions provided in this manual, and keep it in a safe place for future reference. If you have any doubt whatsoever regarding the installation or maintenance of your Rancho suspension system, please see your retailer for assistance or advice. Failure to follow the warnings and instructions provided herein can result in the failure of the suspension system, or can cause you to lose control of your vehicle, resulting in an accident, severe personal injury or death.

These instructions should remain in the vehicle glove box for future reference.

⚠ WARNING: READ ALL INSTRUCTIONS THOROUGHLY FROM START TO FINISH BEFORE BEGINNING INSTALLATION. Failure to follow the warnings and instructions provided herein can result in an accident, severe personal injury or death.

PRELIMINARY

This manual presumes that all persons installing this suspension system have a high level of mechanical training and experience, and have available to them all necessary tools and safety equipment. This manual is not and should not be construed as an exhaustive list of all required safety measures. Personnel should rely primarily on their training and experience, as well as on their own common sense.

This Manual is to be read as a supplement to, and must not be construed as a substitute for, the owner's manual and/or shop manual that originally accompanied the vehicle. Refer to such use, operation, maintenance and safety manuals as necessary, and especially after installation is complete, to insure proper vehicle operation.

The following terminology has been used in this Manual:

ACCIDENT: Any event which could cause personal injury or death to anyone installing or using the suspension system, as well as to passengers and bystanders, or otherwise may result in property damage.

PRE-INSTALLATION WARNINGS and INSTRUCTIONS

⚠ WARNING: Only the following wheel / tire size may be used with this suspension system: 33 x 12.50R15 tire, 15" x 8" wheel with 3.75

Use of any other rim/tire combination increases the risk of a roll-over and/or accident, resulting in severe personal injury or death.

⚠ WARNING: This suspension system will enhance the off-road performance of your vehicle. It will handle differently; both on and off-road, from a factory equipped passenger car or truck. Failure to drive this vehicle safely may result in serious injury or death to the driver and passengers. ALWAYS WEAR your seat belts, REDUCE your speed, and AVOID sharp turns and other abrupt maneuvers.

1) Service and repair tasks require specialized knowledge, training, tools, and experience. General mechanical aptitude may not be sufficient to properly install this suspension system. If you have any doubt whatsoever regarding your ability to properly install the suspension system, please consult a qualified mechanic.

2) Your brake lines and fuel lines should remain undisturbed during and after installation. If you think you need to modify these components in any way, you are mistaken. You are installing the lift improperly and will be creating a significant risk of an accident. In case of any doubt, consult a qualified mechanic.

3) If any component does not fit properly, something is wrong. You are installing the lift kit improperly and will be creating a significant risk of an accident. Never modify any component of the vehicle or suspension system, except as instructed herein. Do not continue with installation until you have identified the problem.

4) Several of the procedures described herein require at least two (2) persons to safely complete the task. If you have any doubt about your ability to complete any operation by yourself, always ask for help from a qualified assistant.

5) Before starting any operation, confirm that all personal safety devices and safety equipment are in proper condition and position.

6) Give your work undivided attention. Looking around, carrying on a conversation and "horse-play" are careless acts that can result in an error in installation and/or serious injury.

7) Install only tires approved by the United States Department of Transportation ("DOT approved"). Make sure the rim and tire size are properly matched.

8) If any components of the vehicle or suspension system are damaged in any way during installation, immediately replace the component.

9) During installation, carefully inspect all parts of the vehicle and replace anything that is worn or damaged.

10) Nip points present the risk of the catching, lacerating, crushing and/or amputating fingers, hands, limbs and other body parts during operations. Always keep clear. Wear protective gloves.

11) Oil and hydraulic fluids are poisonous, dangerous to health and are known to the State of California to cause cancer, birth defects or other reproductive harm. Do not inhale vapors or swallow. Do not allow contact with the eyes or skin. Should any oil or fluids be swallowed or inhaled or come into contact with the eyes, immediately follow the safety precautions on the label or call a poison control center immediately. Should any of the oil or fluids contact your skin, immediately wash thoroughly.

12) Never install the suspension system if you are under the effects of alcohol, medications and/or drugs. If you are taking prescription or over the counter medication, you must consult a medical professional regarding any side effects of the medication that could hinder your ability to work safely.

AFTER INSTALLATION WARNINGS AND INSTRUCTIONS

13) After installation is complete, drive the vehicle slowly in an area free from heavy traffic for at least three (3) miles. Likewise, before traveling on any highways or at a high rate of speed, drive the vehicle for ten (10) miles on side roads at moderate speed. If you hear any strange noise or feel unusual vibration, if a component of the suspension system is not operating properly, or if any warning lights illuminate or buzzers sound, stop the vehicle immediately. Identify the cause and take any necessary remedial action.

14) Confirm that all components of the vehicle, including all lights (headlights, turn signals, brake lights, etc.), linkages (accelerator, etc.), electrical switches and controls (windshield wipers and defoggers, etc.), and other warning devices (low tire pressure monitoring systems) are fully operational.

15) Your headlights will need to be readjusted before the vehicle is used on the roads. Consult the vehicle owners' manual.

16) The speedometer and odometer will need to be recalibrated after installation. See your dealer.

17) Confirm proper rear view and side view while seated in the driver seat. Install supplemental mirrors as necessary.

18) Your original low tire pressure monitoring system may be re-installed in your new wheels. However, if you choose to purchase a new system, see your dealer to have them properly calibrated. Proper tire pressure is critical to safe operation of the vehicle.

OPERATION

19) Because it has been modified, the vehicle will not handle, turn, accelerate or stop in the same manner as an unmodified vehicle. In addition, the crash protection systems designed in the vehicle may operate differently from an unmodified vehicle. For example, turning and evasive maneuvers must be executed at a slower rate of speed. Further, there is a greater risk that the vehicle could roll over. These differences could result in an increased possibility of an accident, personal injury or death. Learn the vehicle's operations and handling characterizes and drive accordantly.

IMPORTANT NOTES

A. Before installing this system, have the vehicle's alignment and frame checked by a certified technician. The alignment must be within factory specifications and the frame of the vehicle must be sound (no cracks, damage or corrosion). Have all suspension, steering and driveline components inspected and replaced if worn or damaged

B. The components of Rancho's suspension system are designed as a single integrated system. To avoid compromises in terms of safety, performance, durability or function, do not install a body lift kit with Rancho's suspension system or interchange parts from this system with components from another manufacturer. Use of other components will result in the forfeiture of any type of warranty on the vehicle/suspension system.

C. Some components required for the installation of this kit may need to be purchased separately. See "*SPECIFICATIONS & REQUIREMENTS*" on next page of this manual.

D. Compare the contents of this system with the parts list in these instructions. If any parts are missing, contact the Rancho Technical Department at 1-734-384-7804.

E. Do not powder-coat or plate any of the components in this system. To change the appearance of components, automotive paint can be applied over the original coating.

F. Each hardware kit in this system contains fasteners of high strength and specific size. Do not mix hardware kits or substitute a fastener of lesser strength. See bolt identification table at end of instruction.

G. Install all nuts and bolts with a flat washer. When both SAE (small OD) and USS (large OD) washers are used in a fastener assembly, place the USS washer against the slotted hole and the SAE washer against the round hole.

H. Apply a drop of thread locking compound to all bolts during installation. ⚠ CAUTION: Thread locking compound may irritate sensitive skin. Read warning label on container before use.

I. Unless otherwise specified, tighten all nuts and bolts to the standard torque specifications shown in the table at end of instruction. USE A TORQUE WRENCH for accurate measurements.

J. Do not weld anything to these components, and do not weld any of these components to the vehicle unless specifically stated in the instructions Welding on a vehicle creates an electrical charge throughout the body and frame. Disconnect the vehicle's battery prior to any welding. Place welding ground clamps as near as possible to the weld. Never use a vehicle suspension component as a welding ground point.

K. It is extremely important to replace coil springs, axle flanges, and drive shaft/pinion relationships as original. Be sure to mark left/right, front/rear, and indexing of mating parts before disassembly. A paint marker or light colored nail polish is handy for this.

L. Suspension components that use rubber or urethane bushings should be tightened with the vehicle at normal ride height unless otherwise specified. This will prevent premature failure of the bushing and maintain ride comfort.

M. Some of the service procedures require the use of special tools designed for specific procedures. If you do not know how to safely use any of these tools, or do not have them, stop the project and consult a qualified mechanic. See "*Tools and Supplies*" on next page of this manual

N. The required installation time for this system is approximately 4 to 5 hours for two people. Check off the box (☐) at the beginning of each step when you finish it. Then when you stop during the installation, it will be easier to find where you need to continue from.

O. Important information for the end user is contained in the consumer/installer information pack. If you are installing this system for someone else, place the information pack on the driver's seat. Please include the installation instructions when you finish.

P. The lifespan of Rancho products depends on many factors. Improper use, abuse or harsh use in general may compromise the integrity of the suspension system and significantly reduce its lifespan. The suspension system is also subject to wear over time. Have the suspension system regularly inspected and maintained by qualified mechanics. If the inspection reveals any damage or excessive wear, no matter how slight, immediately replace or repair the component. The suspension system must be regularly maintained in order to optimize its safe and efficient use. The more severe the conditions under which the suspension system is operated, the more often it must be inspected and maintained.

Q. If any component breaks or bends, contact your local Rancho dealer or Rancho for replacement parts or, contact the Rancho Technical Department at 1-734-384-7804.

Thank you for purchasing the best suspension system available. For the best installed system, follow these instructions. If you do not have the tools or are unsure of your abilities, have this system installed by a certified technician. RANCHO IS NOT RESPONSIBLE FOR DAMAGE OR FAILURE RESULTING FROM AN IMPROPER INSTALLATION

The driver of this suspension system recognizes and agrees that there are risks inherent in driving a vehicle with a lifted suspension system, including but not limited to the risk that you could be involved in an accident that would not occur in an unmodified vehicle. By his/her purchase and use of this suspension system, the user expressly, voluntarily and knowingly accepts and assumes these risks, and agrees to hold Tenneco, Inc. and its related companies harmless to the fullest extent permitted by law against any resulting damages.

SPECIFICATIONS & REQUIREMENTS

Shock Absorbers

New Rancho shock absorbers must be used with this kit, and must be purchased separately.

Do not reuse OE shock absorbers

⚠WARNING Use of the wrong shock absorbers can cause damage to vehicle without the damage being visible to you, resulting in loss of vehicle control and an accident

Required Rancho shock absorbers

Front	Rear
RS5255	RS5256
RS55255	RS55256
RS7255	RS7256
RS999255	RS999256

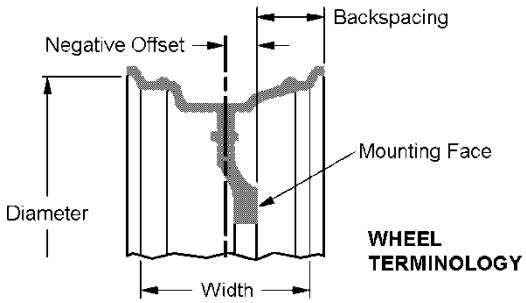
Wheels and Tires

This suspension system was developed using the following tire & wheel combination:
33 x 12.50R15 tire, 15" x 8" wheel with 3.75

Before installing any other combination, consult your local tire and wheel specialist.

Compatible With OE Wheels	Development Tire Size	Wheel Size (Backspacing)
Yes[1]	33 x 12.50R15	15" x 8" (3.75”)

[1] OE wheels compatible with stock size tires only.



WHEEL TERMINOLOGY

Recommended Components and Modifications *(MUST BE PURCHASED SEPARATELY)*

Drive Shaft -
To reduce rear driveline vibration and/or to increase ground clearance, you may want to install a slip yoke eliminator (SYE) and double-cardan (CV) driveshaft and not use the skid plate/crossmember spacers and shift relocating bracket.
A double-cardan driveshaft for the Rubicon (Part No. 3394-0100) is available from:
Powertrain Industries 7532 Anthony Avenue, Garden Grove, CA 92841 (714) 893-4583.
Consult your local 4X4 shop for more information.

Skid Plate Adapter RS904 -
To reinstall the automatic transmission skid plate, adapter kit RS904 must be purchased separately.

Tools and Supplies *(BECAUSE OF VEHICLE VARIATIONS, THIS MAY NOT BE A COMPLETE LIST)*

Jeep Service Manual
Pitman Arm Puller C-4150-A
Steering Linkage Puller C-3894-A
Hydraulic Floor Jack
Heavy Duty Jack stands
Wheel Chocks (Wooden Blocks)
Torque Wrench (250 FT-LB capacity)
3/8” and 1/2” Drive Ratchet and Socket Sets
Combination Wrenches
Drill Motor
Drill assortment (1/8” to 1/2”)
Allen Wrenches
Torx Key Sockets
Hacksaw
Wire Brush (to clean mounting surfaces)
Body Clip Removal Tool
Hammer
Pliers
File
Grease Gun with NLGI 2 GC-LB Lithium Complex Grease
Red LocTite
Penetrating Lube (to aid removal of corroded and frozen hardware)
Safety Glasses--
Wear safety glasses at all times

Parts List

Part Number	Description	Qty.
RS66113B-1	Box 1 of 3	1
RS881010B	TJ Adjustable Lower Control Arm	4
RS66113B-2	Box 2 of 3	1
RS881020B	Front Track Bar	1
RS860841	Hardware Kit	1
RS7727	Pitman Arm	1
RS170081	Front Right Brake Line	1
RS170082	Front Left Brake Line	1
RS176088B	Sway Bar End Link, Rear	2
RS176443	Front Bumpstop Spacer	2
RS860155	Sub Assy, Rear End Link	1
RS545	Bushing EB1 Hourglass	4
RS420088	Sleeve - .688 X .448 X 1.40	4
RS7629	HHCS, 7/16-20 X 2.50	4
RS7616	Nut, 7/16-20 Top Lock	4
RS7726	Washer, 7/16 SAE	4
RS7746	Washer, 7/16 USS	6
RS860710	Sub Assy, Front Bump Stop	1
RS7713	HHTS, 3/8-16 X 1.5	2
RS881028	Quick Disc. End Link	1
RS176798	Quick Disconnect Link	2
RS860842	Sub Assy, Mounting Stud Hdwr	1
RS176859	Quick Disconnect Stud Lg	2
	Spacer	2
RS770303	Cotter Pin	2
127200067002	Washer ¾"	2
RS860843	Sub Assy, Storage. Stud Hdwr	1
RS176860	Quick Disconnect Stud Small	2
RS7755	Washer, 3/8 USS	2
RS42702	Thread Lock	1
RS860844	Sub Assy, Brkt Hdwr	1
RS176756	Upper Mount - TJ	2
RS770064	Washer M10	2
RS7657	Nut M10-1.50 Nylock	2
RS130019	Rear Trackbar Bracket	1
RS420027	Bumpstop Spacer, Rear	2

Part Number	Description	Qty.
RS860160	Sub Assy, Shift Relocator	1
RS77032	BHCS, 1/4-20 X .75	4
RS7710	Nut, 1/4-20 Nylock	4
RS77841	Washer 1/4 SAE	4
RS176090	Shift Relocator	1
RS42702	.5 Cc Thread Lock	2
RS860072	Sub Assy, Rear Track Bar	1
RS420026	Sleeve - .750 X .482 X 1.60	1
RS77033	HHCS, 7/16-14 X 1.	1
RS7726	Washer, 7/16 SAE	2
RS78371	Nut 7/16-14 Top Lock	1
RS770051	HHCS, 3/8-16 X 1.0	1
RS603508	Washer, 3/8 SAE	2
RS78391	Nut 3/8-16 Top Lock	1
RS77035	HHCS, 12MMX1.75X70	2
RS7723	Washer, 1/2 SAE	4
RS7911	Nut, 12MM-1.75 Top Lock	2
RS860161	Sub Assy, Skid Plate	1
RS77037	SHCS, 1/2-13 X 2.5	6
RS140320	Washer, 1/2 Cone	6
RS7691	HHCS, M10-1.50X70MM	2
RS603525	Lockwasher, M10	2
RS176091	Skid Plate Spacer	6
RS176092	Skid Plate Shim	6
RS860483	Sub Assy, Skid Plate	1
RS7914	HHCS, M12-1.75X65MM	6
RS7915	Washer, M12	6
RS89113	Instructions	1
RS94180	Information Pack	1
RS94177	Rollover Warning Label	1
RS94119	Consumer/Warranty Information	1
RS780281	Rancho Decal	1
R-RM0082-1112	Warranty Tag	1
RS66113B-3	Box 3 of 3	1
RS864B	Front Coil Spring Progressive	2
RS695B	Rear Coil Spring	2

TRACK BAR & COIL SPRING REMOVAL

1) ☐ Park vehicle on a level surface and set the parking brake. Center front wheels and chock rear wheels.

2) ☐ Measure and record the distance from the center of each wheel to the top of the fender opening. See Illustration 1.

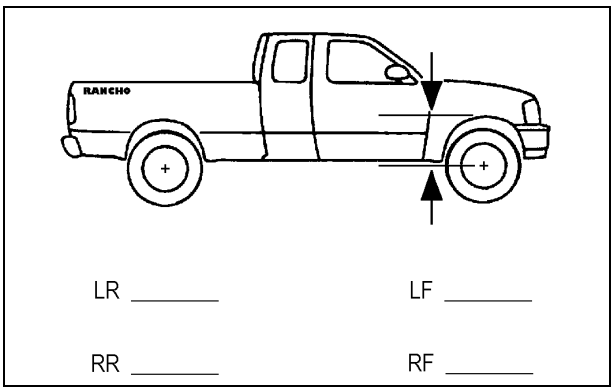


Illustration 1

3) ☐ Utilizing a straight edge, measure the horizontal distance between the outer edge of each front tire and the vehicle body (at top edge of fender well).

Left Side:_____ Right Side:_____

4) ☐ Remove the cotter pin and nut from the ball stud end of the track bar at the frame rail bracket. Separate the ball stud from the bracket with the recommended puller tool. See Illustration 2.

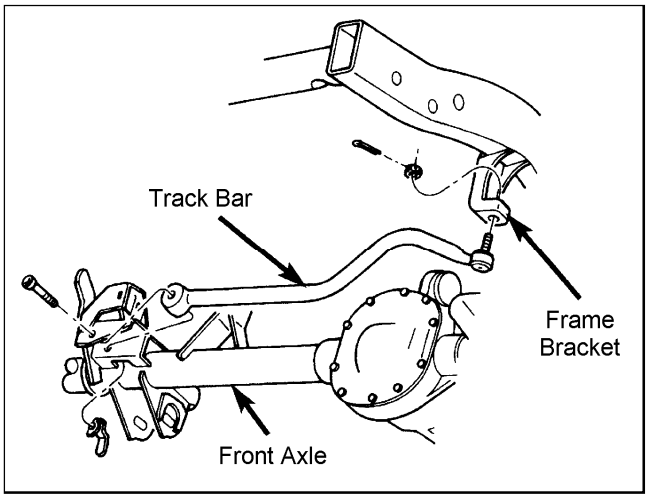


Illustration 2

5) ☐ Remove the bolt and flag nut from the axle bracket. Remove the track bar.

6) ☐ If applicable, remove the bolts attaching the automatic transmission skid plate to the frame rails and the transfer case cross member (Do not use an impact wrench). Remove the skid plate.

NOTE: To reinstall the automatic transmission skid plate, adapter kit RS904 must be purchased separately.

7) ☐ Raise the front of the vehicle and support the frame with jack stands. Remove the front wheels and set them aside.

8) ☐ Loosen but do not remove upper and lower control arm bolts. See Illustration 6.

9) ☐ Position a floor jack under the front axle for support. Remove both front sway bar end links. See Illustration 3.

10) ☐ Remove bolt holding brake line brackets to frame rail.

11) ☐ Remove the upper stud nut, retainer and grommet from both front shock absorbers.

12) ☐ Remove the shock absorber lower nuts and bolts. Remove the front shock. DO NOT REUSE ORIGINAL SHOCK ABSORBERS.

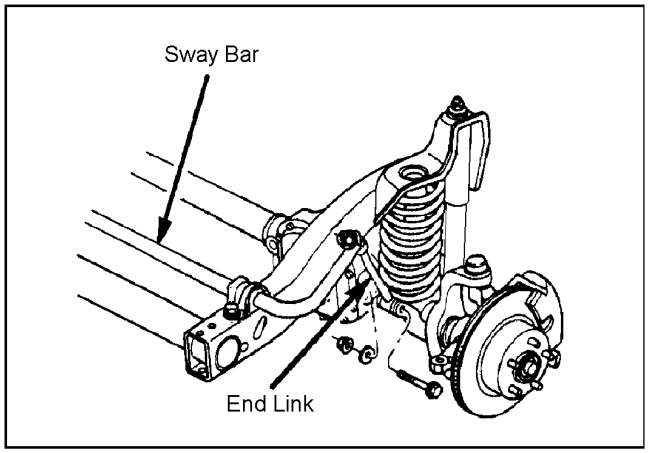


Illustration 3

13) ☐ Remove the rubber bump stops and bump stop mounts from inside of the coil springs.

14) ☐ If applicable, remove the coil spring retainer bolt and retainer.

15) ☐ Lower axle, push down on the axle and remove the coil spring.

CAUTION: Do not allow the front axle to hang by any hoses or cables.

LOWER CONTROL ARM REPLACEMENT

1) ☐ If applicable, paint or scribe alignment marks on the adjustment cams and axle brackets for installation reference. See Illustration 4.

2) ☐ If equipped with ABS brakes, remove sensor wires and clamps from the inboard side of the lower control arms. Save clamps for reuse.

NOTE: Remove and replace one suspension arm at a time.

3) ☐ Adjust Rancho lower control arms RS881010B to 16.00"

CAUTION: Do not exceed maximum length of 16.32" Exposed thread must be 1-3/16" (1.188") or less. See Illustration 5

4) ☐ Remove the nut, cam, and cam bolt from the axle bracket. Remove the nut and bolt from the frame bracket. Remove the lower control arm. See Illustration 6.

5) ☐ Attach the adjustable end of the lower control arm R881010B to the frame bracket with original hardware. See Illustration 7.

6) ☐ Attach non-adjustable end of lower control arm to the axle bracket with the original hardware.

7) ☐ If control arms do not align with mounting holes, use a jack under the axle pinion housing or under the differential to slightly rotate axle the desired direction.

8) ☐ Repeat steps 2 through 5 to install control arm on the passenger side.

9) ☐ Align the reference marks on the adjustment cams and lower arm axle brackets. Tighten nuts to 85 LB-FT.

10) ☐ Torque lower control arm to frame mounting hardware to 130 lb-ft. Tighten jam nut to 150 lb-ft.

Upper control arms will be torqued on the ground at ride height

PITMAN ARM REPLACEMENT

1) ☐ Remove the cotter pin and nut from the drag link at the pitman arm. Separate the drag link ball stud from the pitman arm with a puller tool. Do not use a pickle fork.

2) ☐ Center the steering wheel and mark the position of the original pitman arm. Remove the nut and washer from the steering gear shaft.

3) ☐ Remove the pitman arm from the steering gear with pitman arm puller C-4150-A.

4) ☐ Align and install new pitman arm RS7727 on the steering gear shaft. Install the washer and nut. Tighten the nut to 185 ft. lbs.

5) ☐ Install the drag link ball stud to the pitman arm. Install the nut and tighten to 60 ft. lbs. Install a new cotter pin.

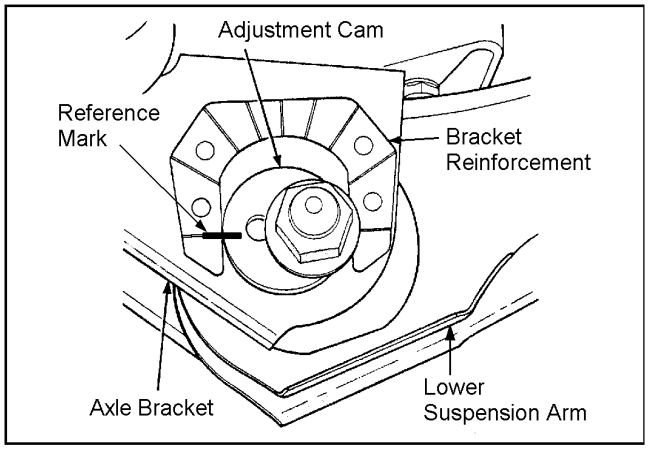


Illustration 4

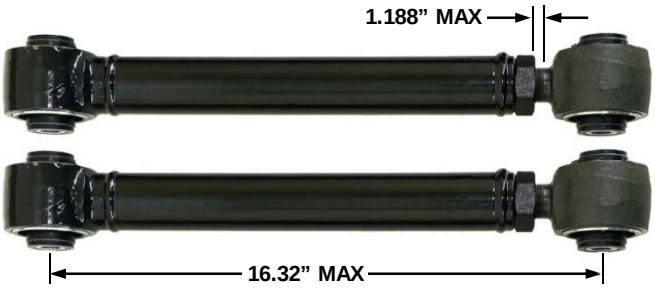


Illustration 5

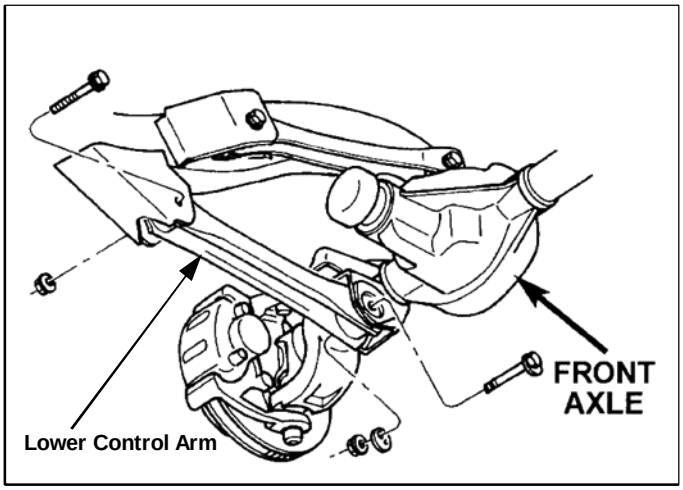


Illustration 6

Illustration 7

COIL SPRING INSTALLATION

1) ☐ Lower the front axle.

CAUTION: Do not allow the front axle to hang by any hoses or cables.

2) ☐ Drill a 5/16" hole through the center of the coil spring axle pad. For ease of installation, tap the hole (3/8-16).

3) ☐ Reinstall the bump stop mounts and rubber bump stop.

4) ☐ Compress the new front coil spring to 16 inches in length. Use a quality spring compressor like the one shown in Illustration 8.

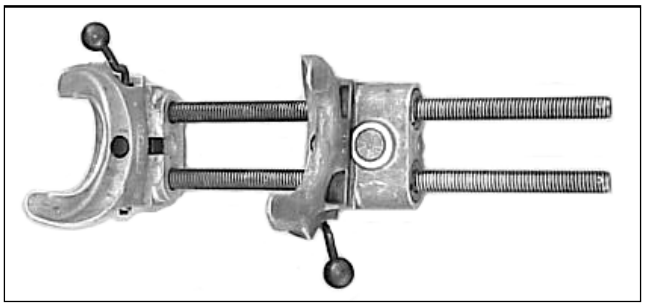


Illustration 8

5) ☐ Place bump stop spacer RS176089 inside the compressed spring as you install the spring into the upper and lower spring pockets. Carefully remove the spring compressor.

6) ☐ Rotate spring so pig tail end fits back in spring pocket.

7) ☐ Attach the bump stop spacer to the axle pad with the self-tapping screw from kit RS860710 and red Loctite. Torque to 20 lb-ft..

8) ☐ Repeat steps 2 through 7 for other side.

9) ☐ Install one retaining washer and grommet onto each new front shock absorber. Position shock stud through upper mounting hole. Install upper shock grommet, retainer and nut. Tighten to 17 LB-FT. Repeat for other side.

10) ☐ Raise axle with jack and attach shocks to axle brackets. Tighten bolts to 23 LB-FT.

CAUTION: Do not allow the raise vehicle off of jack stands.

BRAKE HOSE REPLACEMENT

NOTE: To keep the brake bleeding process to just the front calipers, do not allow the brake fluid to drain completely from the master cylinder reservoir.

1) ☐ Separate the left front brake hose from the brake tube. Plug tube to prevent brake fluid leakage.

2) ☐ Remove the brake hose from the caliper. Discard copper washers.

3) ☐ Attach left brake hose RS170082 to the caliper with NEW copper washers from kit RS860086, and the original bolt. See Illustration 9. Tighten the bolt to 23 ft.-lbs.

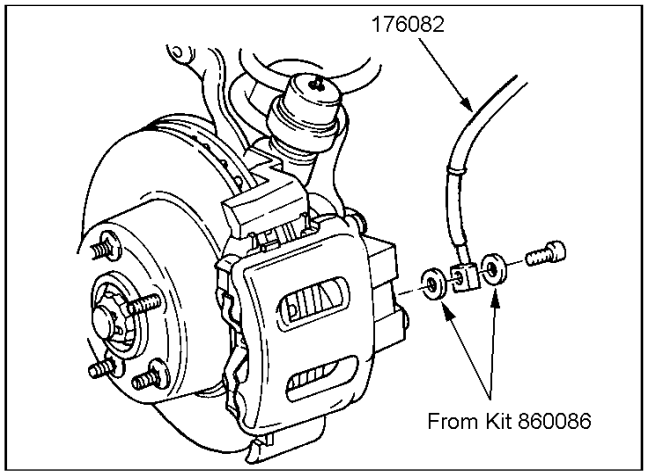


Illustration 9

4) ☐ Attach the new brake hose to the frame and brake tube. Tighten securely.

5) ☐ Repeat steps 1 through 4 to install right front brake hose RS170081.

6) ☐ Refill the master cylinder reservoir with approved brake fluid and bleed the front brakes as follows:

Attach a clear hose to the right front caliper bleeder screw and immerse the other end into a container of clean brake fluid.

Loosen the bleeder valve on the caliper.

Have an assistant push the brake pedal down and then hold.

Tighten the bleeder valve and slowly release the pedal.

Repeat the procedure until all air is purged from the caliper.

Attach the hose and container to the left front caliper and repeat the bleeding process. Refill the brake master cylinder reservoir as necessary.

7) ☐ With the suspension at maximum extension (full droop), inspect and rotate all axles and drive shafts. Check for binding and proper slip yoke insertion. The slip yoke should be inserted a minimum of one inch into the transfer case and/or transmission. Check any lines, hoses and wires for sufficient slack.

8) ☐ Turn the front wheels completely left then right. Verify adequate tire, wheel, and brake hose clearance. Inspect steering and suspension for tightness and proper operation.

LOWER VEHICLE

1) ☐ Install front wheels and lower vehicle to the ground. Tighten lug nuts to 80--110 LB-FT.

2) ☐ Torque upper control arms to 55 lb-ft.

TRACK BAR INSTALLATION

1) ☐ Loosen the jam nut on the new track bar RS881020B. Adjust the length to 31-3/4" from center of busing to center of rod end.. Do not tighten the jam nut.

2) ☐ Loosely attach the new track bar RS881020B to the axle bracket with the original bolt and flag nut.

3) ☐ Temporarily attach the track bar end to the frame rail bracket.

4) ☐ Repeat tire to fender well measurements (refer back to step 3 under "TRACK BAR & COIL SPRING REMOVAL" Removal). If necessary, adjust the track bar end to duplicate the previously measured difference. Tighten the jam nut.

5) ☐ Tighten the track bar to axle bracket mounting bolt to 55 ft. lbs. and the ball stud nut to 65 ft. lbs. Install a new cotter pin.

6) ☐ Grease rod end using grease gun with NLGI 2 GC-LB lithium complex grease until boot starts to swell. Do not over-grease.

REAR SUSPENSION

TRACK BAR & COIL SPRING REMOVAL

1) ☐ Chock front wheels. Disconnect and remove the rear sway bar end links.

2) ☐ Disconnect the track bar from the frame bracket. See Illustration 10.

3) ☐ Raise the rear of the vehicle and support the frame with jack stands. Remove the rear wheels.

4) ☐ Separate the track bar from the axle bracket. Remove the track Bar. See Illustration 10.

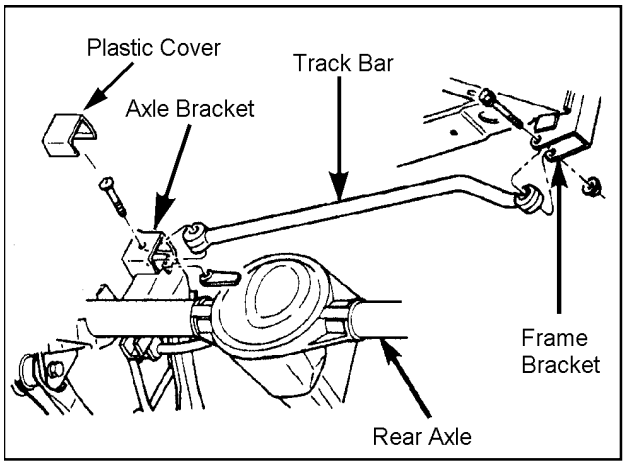


Illustration 10

5) ☐ Loosen but do not remove upper and lower control arm bolts

6) ☐ Support the rear axle with a floor jack and remove the shock absorbers. DO NOT REUSE ORIGINAL SHOCK ABSORBERS.

7) ☐ Mark the orientation of the coil springs on the axle pads. Carefully lower the rear axle until the coil springs are free from the upper mount seat. Remove the coil springs.

TRACK BAR BRACKET INSTALLATION

1) ☐ Place track bar bracket RS130019 on top of the axle bracket as shown in figure 13. To properly align the bracket, insert a 12mm bolt from kit RS860072 through both brackets.

2) ☐ Using the new bracket as a template, mark the two additional mounting holes on the axle bracket. Remove bracket and drill a 13/32" hole through the top of the axle bracket and 15/32" hole through the side.

3) ☐ Reinstall the track bar bracket and attach it to the axle with the sleeve and hardware from kit RS860072. See Illustration 11. Torque 7/16" hardware to 60 lb-ft, 3/8" hardware to 35 lb-ft, and 12mm harware to 74 lb-ft.

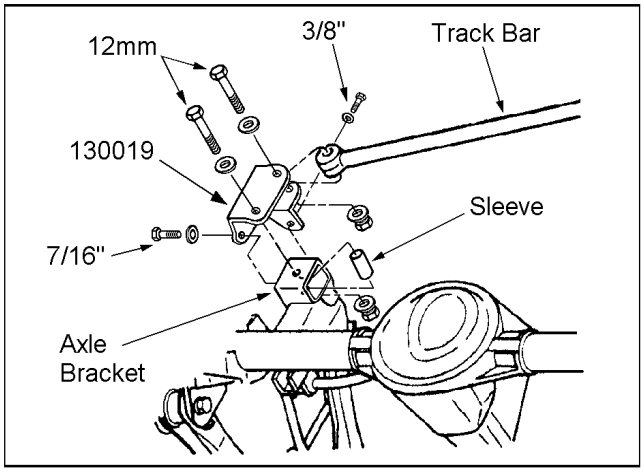


Illustration 11

4) ☐ Insert track bar into track bar bracket and install the 12mm hardware from kit RS860072.

NOTE: Do not attach the track bar to the frame bracket or tighten the mounting bolt at this time.

5) ☐ Bend gas tank skid plate away from track bar if necessary.

LOWER CONTROL ARM REPLACEMENT

NOTE: Remove and replace one control arm at a time.

1) ☐ Support the rear axle with a hydraulic jack.

2) ☐ Adjust Rancho lower control arms RS881010B to 16".

CAUTION: Do not exceed maximum length of 16.32" Exposed thread must be 1-3/16" (1.188") or less. Refer back to Illustration 1.

3) ☐ Remove the control lower arm axle and frame mounting bolts. Remove the lower control arm.

4) ☐ Attach the adjustable end of the lower control arm R881010B to the frame bracket with original hardware. See Illustration 12.

5) ☐ Attach non-adjustable end of lower control arm to the axle bracket with the original hardware.

If control arms do not align with mounting holes, use a jack under the axle pinion housing or under the differential to slightly rotate axle the desired direction.

6) ☐ Repeat steps 3 through 5 to install control arm on the passenger side.

7) ☐ Torque lower control arm mounting hardware to 130 lb-ft. Tighten jam nut to 150 lb-ft.

Upper control arms will be torqued on the ground at ride height

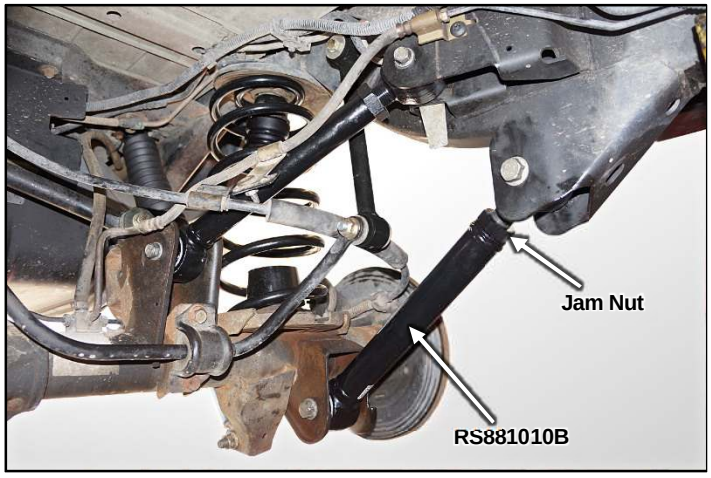


Illustration 12

BUMP STOP SPACER & COIL SPRING INSTALLATION

1) ☐ Remove the rubber bump stop and bump stop bracket from the upper spring mount.

2) ☐ Insert Rancho spacer RS420027 and reinstall the bracket with the 10mm hardware from kit RS860161. Insert the bump stop into the bump stop bracket. Torque to 40 lb-ft. See Illustration 13.

3) ☐ Repeat steps 1 & 2 for other side.

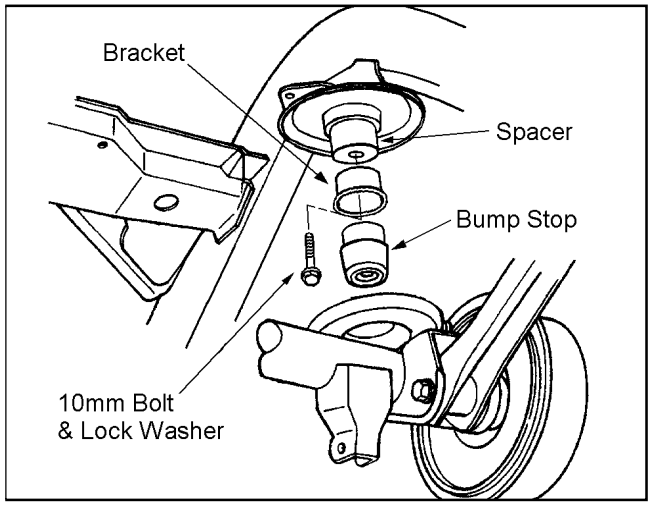


Illustration 13

4) ☐ Lower rear axle and position the new coil springs onto the axle pads. Align springs with reference marks. Raise the axle until the spring seat in the upper mounts.

NOTE: When installing coil springs, make sure that the rubber damper is positioned in the upper mount and the small egg-shaped coil end is at the top.

5) ☐ Install new Rancho rear shocks to the upper frame rail. Tighten mounting bolts to 23 LB-FT.

6) ☐ Attach shocks to the axle brackets. Torque to 74 ft. lbs.

SWAY BAR END LINK INSTALLATION

1) ☐ Apply silicone lubricant and press a bushing from kit RS860155 into a new rear end link (RS176088).

2) ☐ Apply silicone lubricant and press a sleeve from kit RS860155 into the installed bushing.

3) ☐ Repeat steps 1 and 2 to install the rest of the bushings and sleeves.

4) ☐ Attach the new end link assemblies to the frame brackets and rear sway bar with the hardware from kit RS860155. See Illustration 14. Tighten the end link mounting bolts to 40 ft. lbs.

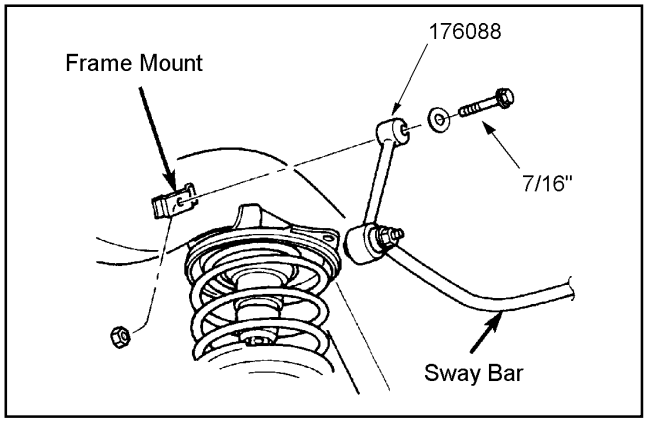


Illustration 14

NOTE: It may be necessary to enlarge the mounting holes in the sway bar and frame brackets to 7/16".

5) ☐ With the suspension at maximum extension (full droop), inspect and rotate all axles and drive shafts. Check for binding and proper slip yoke insertion. The slip yoke should be inserted a minimum of one inch into the transfer case and/or transmission. Check any lines, hoses and wires for sufficient slack.

LOWER VEHICLE

1) ☐ Install front wheels and lower vehicle to the ground. Tighten lug nuts to 80--110 LB-FT.

2) ☐ Torque upper control arms to 55 lb-ft.

3) ☐ Place the track bar into the frame bracket and install the original hardware. Tighten the track bar mounting bolts to 74 ft. lbs.

TRANSMISSION & TRANSFER CASE

NOTE: See Important Note O before proceeding.

Cross member Relocation

1) ☐ Place the transmission in neutral. Support the transfer case crossmember/skid plate with a hydraulic jack. Loosen the 6 bolts holding the crossmember to the frame. See Illustration 15. Do not use an impact gun.

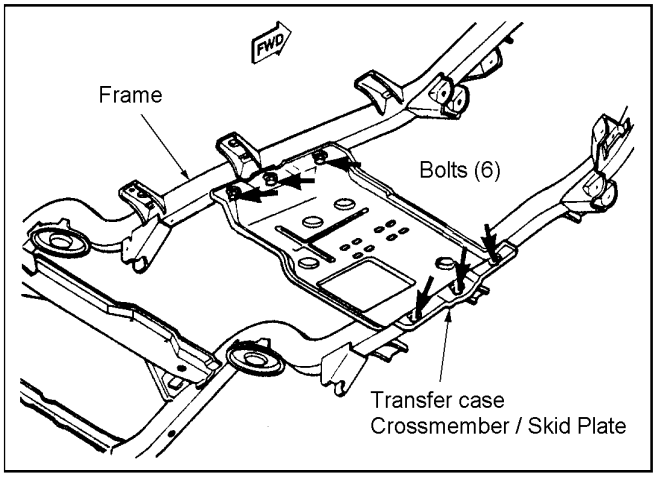


Illustration 15

2) ☐ Remove 3 bolts on one side and carefully lower the cross member/skid plate.

3) ☐ Place 3 spacers from kit RS860161 between the cross member and the frame with the conical end of the spacer facing down. See Illustration 16. For vehicles with an automatic transmission, add 3 shims.

4) ☐ If flat head screws were removed, install a conical washer and apply thread lock to 3 flat head screws from kit RS860161. Insert the screws through the crossmember, spacers, and into the frame. See Illustration 16.

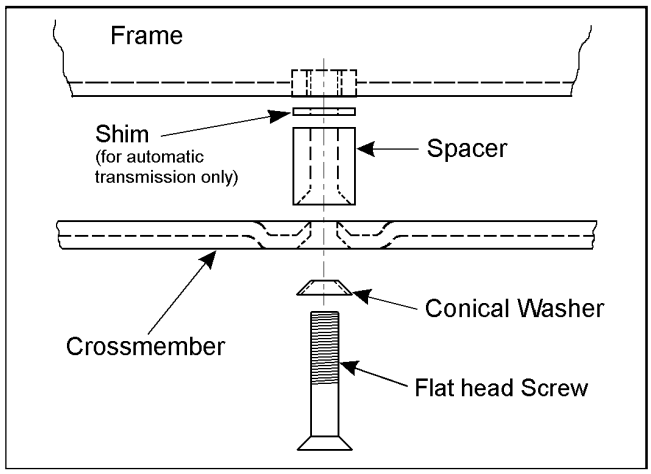


Illustration 16

5) ☐ If hex head screws were removed, install the hardware from kit RS860483. See Illustration 17.

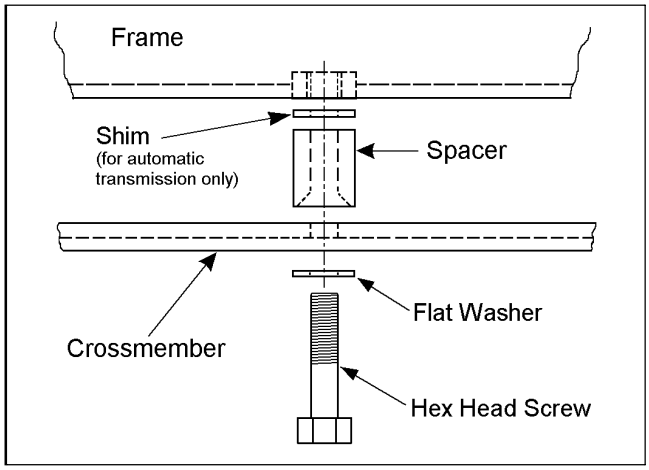


Illustration 17

6) ☐ Repeat steps 3 through 5 for the other side of the cross member. Tighten all bolts to 45 LB-FT.

TRANSFER CASE LINKAGE RELOCATION & ADJUSTMENT

1) ☐ Pull back carpet/mat to gain access to torque shaft bracket mounting screws. If necessary, loosen the screws attaching the console to the floor panel.

2) ☐ Remove the four screws that attach the torque shaft bracket to the floor pan. See Illustration 18.

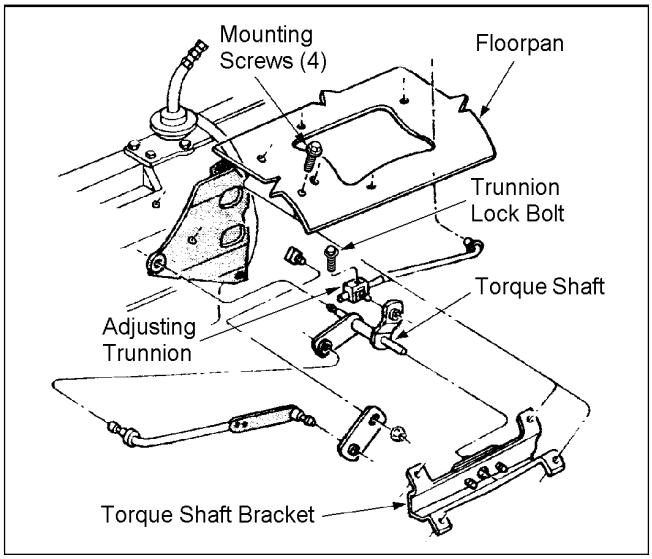


Illustration 18

3) ☐ Slide the torque shaft bracket off the torque shaft, and remove the bearing plate & gasket.

4) ☐ Attach the bearing plate (with gasket) to shift relocating bracket RS176090 as shown in Illustration 19.

5) ☐ Using bracket RS176090 as a template, mark the two mounting holes locations on the torque shaft bracket. See figure 20. Drill a 9/32" hole at each location.

6) ☐ Attach the shift relocating bracket RS176090 to the torque shaft bracket with the hardware from kit RS860160. See Illustration 19.

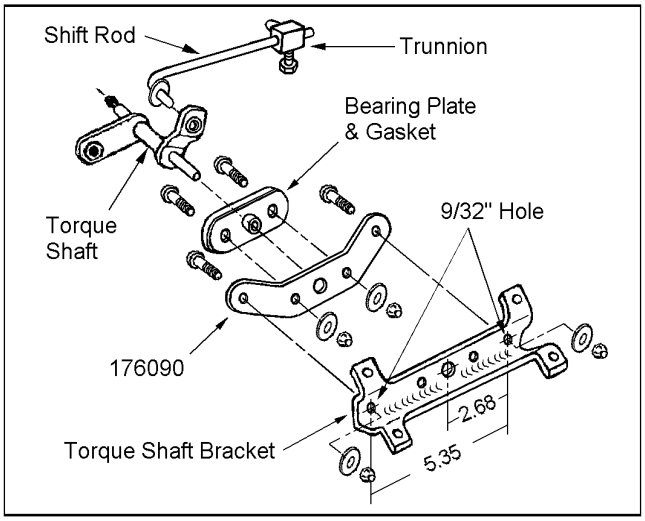


Illustration 19

7) ☐ Insert the torque shaft into the bearing plate and reinstall the torque shaft bracket to the floor pan. Verify that the torque shaft is level and the shifting linkage moves without restriction. If necessary, file the end of the shift rod to provide adequate clearance.

8) ☐ Shift transfer case into 4L position and loosen lock bolt on adjusting trunnion.

NOTE: Be sure shift rod slides freely in trunnion.

9) ☐ Verify that transfer case range lever is fully engaged in 4L position. Tighten adjusting trunnion lock bolt.

10) ☐ Reinstall carpet/mat and tighten console mounting bolts.

FLOOR PAN MODIFICATION (MANUAL TRANS ONLY)

1) ☐ Move the seats to the full rearward position.

2) ☐ Pry up the shift boot and bezel from the floor console. See Illustration 20.

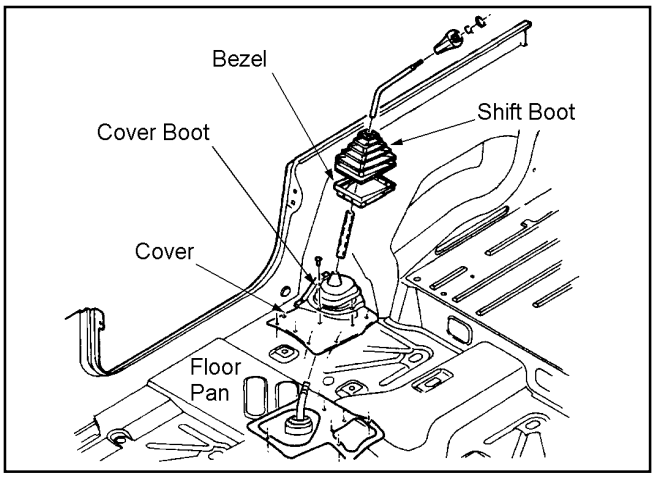


Illustration 20

3) ☐ Remove the bolts attaching the center console to the floor pan.

4) ☐ Lift the center console upward and remove through the passenger door.

5) ☐ Remove the 4 screws attaching the cover boot to the cover. Slide the boot upward to expose the opening in the cover and floor pan.

6) ☐ Shift the transmission into 2nd and reverse. Verify a minimum of 1/8" clearance between the shift lever and floor pan. If necessary, enlarge the opening in the floor pan with a half round file.

7) ☐ Reposition the cover boot. Install one screw on the left side or 9 o'clock position.

8) ☐ Rotate the boot clockwise to match the increased floor pan opening. Mark and drill the three new mounting holes. See Illustration 21.

Illustration 21

9) ☐ Reinstall the cover boot, console, and shift boot.

QUICK DISCONNECT SWAY BAR END LINK INSTALLATION

1) ☐ Slide spacer onto threaded end of large mounting stud from bag RS860842. Loosely install on lower end link axle mount facing inboard with supplied nut and thread lock. See Illustration 22.

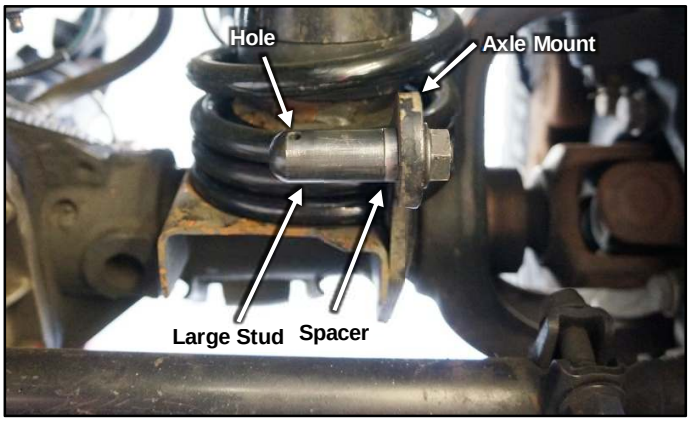


Illustration 22

2) ☐ Lube stud and lower end link bushing with a light coat of lithium grease and slide end link bushing fully onto stud and spacer.

3) ☐ Align hole in stud facing up (vertical) or with the top of hole slightly forward and torque nut to 55 LB-FT.

4) ☐ Remove end link from mounting stud.

5) ☐ From bag RS860844, install upper mount RS176756 on sway bar using M10 washer and nut. Align mounting tab parallel with lower mount and torque to 45 LB-FT. See Illustration 23.

6) ☐ Thread both rod ends of end link fully into center tube.
The ball stud side uses a left hand thread.

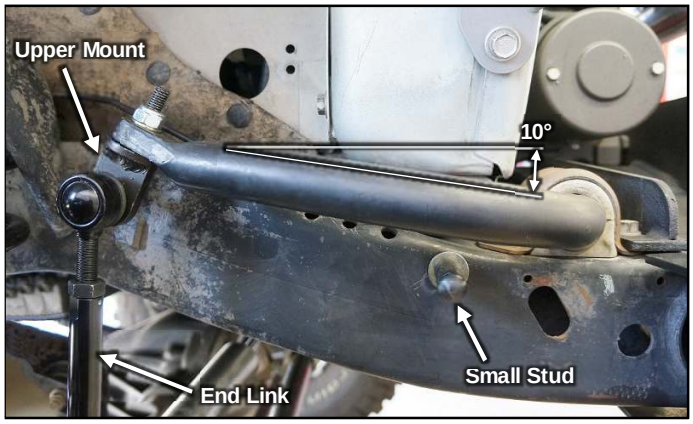


Illustration 23

7) ☐ Install ball stud of end link to outboard side of the upper mount. Torque nut to 55 LB-FT.

8) ☐ Install bushing end of end link to lower mounting stud. Install ¾" washer and insert cotter pin in hole. See Illustration 24.

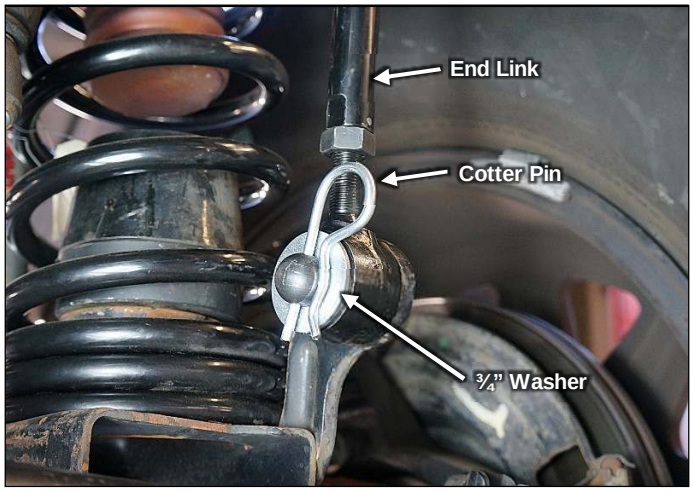


Illustration 24

9) ☐ Adjust length of end link by turning the center tube until the sway bar is about 10° above level horizontal (5°-15°). See Illustration 23.

CAUTION: Do not adjust end link longer than 10.5"

10) ☐ Hold the center tube with a 17mm wrench and tighten the top left-hand thread jam nut with an 18mm wrench.

11) ☐ Straighten ball stud in rod end. Hold the center tube with a 17mm wrench and tighten the lower right-hand thread jam nut with an 18mm wrench.

12) ☐ Disconnect end links from axle.

13) ☐ Push sway bar up and mark position on the frame rail for small stud to hold end link when disconnected. See Illustration 25.

Make sure tire clears stud, end link and sway bar at full turn and full compression. Exact position can vary depending on wheels, tires, and suspension setup.

14) ☐ Center punch and drill 5/16 hole in frame for small stud. Tap hole with a 3/8-16 (UNC) tap.

15) ☐ Install small stud with 3/8" washer from bag RS860843 using thread lock.

Take care not to strip tapped threads.

16) ☐ Mount end link to storage stud using washer and cotter pin. See Illustration 25.

17) ☐ Mark and repeat steps 14-16 for other side.

Illustration 25

FINAL CHECKS & ADJUSTMENTS

1) ☐ Turn the front wheels completely left then right. Verify adequate tire, wheel, and brake hose clearance. Inspect steering and suspension for tightness and proper operation.

2) ☐ With the suspension at maximum extension (full droop), inspect and rotate all axles and drive shafts. Check for binding and proper slip yoke insertion. The slip yoke should be inserted a minimum of one inch into the transfer case and/or transmission.

3) ☐ Ensure that the vehicle brake system operates correctly. If new brake hoses were installed, verify that each hose allows for full suspension movement.

4) ☐ Readjust headlamps. Have vehicle Aligned to manufacturer's specifications.

Alignment Specifications	
Caster	7° ± 1.0°
Camber (fixed angle)	-0.25° ± 0.37°
Toe-In, Each Wheel	0.15° ± 0.15°
Thrust Angle	0° ± 0.15°

5) ☐ Measure and record the distance from the center of each wheel to the top of the fender opening. See Illustration 26.

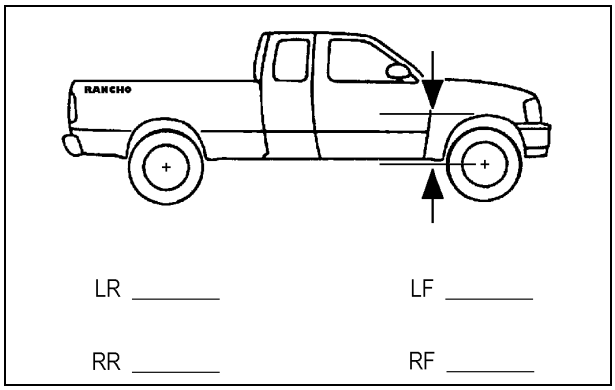


Illustration 26

IMPORTANT NOTICE

WARNING: DO NOT OPERATE THIS VEHICLE ON PUBLIC ROADS OR AT SPEEDS GREATER THAN 15 MPH WITH THE SWAY BAR END LINKS DISCONNECTED.

Torque Specs

Front Components

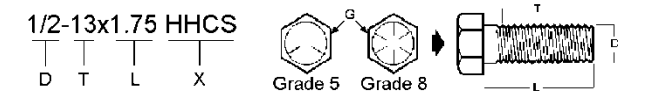
Upper Control Arm	55 lb-ft
Lower Control Arm to Axle	85 lb-ft
Lower Control Arm to Frame	130 lb-ft
Control Arm Adjuster Jam Nut	150 lb-ft
Front Bump Stop Spacer	20 lb-ft
Shock Absorber Upper Mount	17 lb-ft
Shock Absorber Lower Mount	23 lb-ft
Pitman Arm	185 lb-ft
Drag Link to Pitman Arm	60 lb-ft
Brake Line to Caliper	23 lb-ft
Track Bar to Axle	55 lb-ft
Track Bar Ball Stud to Frame Bracket	65 lb-ft
Track Bar Jam Nut	150 lb-ft
Drag Link Adjustment Sleeve Clamp	26 lb-ft
QD End Link Lower Mounting Stud	55 lb-ft
QD End Link Upper Mount to Sway Bar	45 lb-ft
QD End Link Ball Stud to Upper Mount	55 lb-ft
Wheels (Lug Nuts)	80-110 lb-ft.

Rear Components

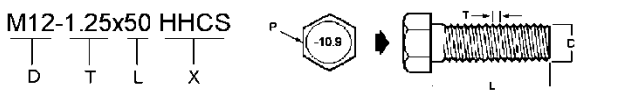
Upper Control Arm	55 lb-ft
Lower Control Arm	130 lb-ft
Control Arm Adjuster Jam Nut	150 lb-ft
Track Bar Bracket 7/16" hardware	60 lb-ft
Track Bar Bracket 3/8" hardware	35 lb-ft
Track Bar Bracket 12MM hardware	74 lb-ft
Track Bar	74 lb-ft
Rear Bump Stop Spacer	40 lb-ft
Shock Absorber Upper Mount	23 lb-ft
Shock Absorber Lower Mount	74 lb-ft
Sway Bar End Link	54 lb-ft
Transmission / Transfer Case Cross member to Frame	45 lb-ft
Wheels (Lug Nuts)	80-110 lb-ft

STANDARD BOLT TORQUE & IDENTIFICATION

INCH SYSTEM			METRIC SYSTEM			
Bolt Size	**Grade 5**	**Grade 8**	**Bolt Size**	**Class 8.8**	**Class 10.9**	**Class 12.9**
5/16	15 LB-FT	20 LB-FT	M6	5 LB-FT	9 LB-FT	12 LB-FT
3/8	30 LB-FT	35 LB-FT	M8	18 LB-FT	23 LB-FT	27 LB-FT
7/16	45 LB-FT	60 LB-FT	M10	32 LB-FT	45 LB-FT	50 LB-FT
1/2	65 LB-FT	90 LB-FT	M12	55 LB-FT	75 LB-FT	90 LB-FT
9/16	95 LB-FT	130 LB-FT	M14	85 LB-FT	120 LB-FT	145 LB-FT
5/8	135 LB-FT	175 LB-FT	M16	130 LB-FT	165 LB-FT	210 LB-FT
3/4	185 LB-FT	280 LB-FT	M18	170 LB-FT	240 LB-FT	290 LB-FT



G = Grade Marking (bolt strength)
D = Nominal Diameter (inches)
T = Thread Pitch (threads per inch)
L = Length (inches)
X = Description (hex head cap screw)



P = Property Class (bolt strength)
D = Nominal Diameter (millimeters)
T = Thread Pitch (thread width, mm)
L = Length (millimeters)
X = Description (hex head cap screw)

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